July 31, 1981

TO: FLUOROPOLYMERS PRODUCTION, TECHNICAL AND MECHANICAL SUPERVISION

FROM: R. J. BURGER

C-8 PROGRAM

As followup to previous communications, this information is to be used to communicate to employees. As additional information is available, we will inform you.

Blood Sampling

The blood sampling program for C-8 has been expanded. The program is voluntary.

- Production, Maintenance and Technical personnel, including supervision assigned to the Fluoropolymers Divisions, will be sampled annually during normal physicals.
- New permanent Production wage roll employees in the Fluoropolymers Divisions will be sampled as soon as practical upon entering the job and at 1, 2, 3, 6 and 12 months, then annually during physicals.
- Women who have left TEFLON® or who were sampled in April and May, 1981, will be resampled in six months and annually during physicals.
- Other selected individuals who have left TEFLON®, including some former employees, will be sampled annually.

C-8 blood results will be provided to individuals as results are available.

Thus far, we have seen no obvious trend of C-8 levels in blood with time. A better comparison will be possible with the above sampling program.

Toxicity Studies

Additional embryotoxic testing, including inhalation studies, is being conducted at Haskell Laboratories (the 3M Company data was based only on ingestion of C-8 by the test animals).

C-8 Replacement

An agressive program is underway by Research and Technical to develop and test replacement materials for C-8. This includes toxicity studies at Haskell Laboratories.

Air Monitoring

The air monitoring program in Fluoropolymers is being expanded. Both personal and area samples will be collected at increased frequencies. The personal samples will determine the exposure level of various job tours, while the area samples will determine average C-8 concentrations in various locations.

The specific GC test for C-8 in air, developed at the Experimental Station, has been set up in the TEFLON® Lab. This will provide more accurate and timely results.

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EMPLOYEE COMMUNICATION

We have been informed by the 3M Company about the preliminary results of a new animal study involving the fluorosurfactant, C-8, which is an essential material that has been used in excess of twenty years in fluoropolymer resins manufacture at Washington Works. 3M is our principal supplier for this chemical.

We were advised on March 20, 1981, that C-8, also known as FC-143 or ammonium perfluorooctanoate, caused birth defects in the unborn when fed by stomach tube to female rats in a laboratory experiment. This was a preliminary study designed to determine dosage limits prior to a full-scale study on C-8's potential to cause birth defects in rats.

At this time, we do not know the significance, if any, of the preliminary animal experiment as it may relate to employee exposure. Further studies are planned to define possible reproductive effects.

As a precaution based on the new study we have decided, that until further information is obtained, all female employees will be removed from areas where there is potential for exposure to C-8 and loaned immediately to other divisions. These female employees will consult with our Plant Medical Division, and those of non-childbearing capability will be given the option to return to the Fluoropolymers area. Women of childbearing capability will be allowed to bid for other plant jobs after a permanent plant posting has been made. Present pay rates will be maintained and vacation selections previously made will be honored for those females reassigned.

During the period that C-8 has been used at Washington Works, there has been no known evidence that our employees have been exposed to C-8 levels that pose adverse health effects. A preliminary acceptable exposure limit of 0.01 mg/m^3 (0.56 parts per billion) was established which we believe has adequately protected our employees. At exposure levels experienced by our employees, there is no evidence to suggest there is any impairment of the male reproductive function.

3M first notified us in 1978 that exposure to C-8 could result in elevated organic fluoride levels in the blood of its employees and that these elevated levels could persist for extended periods of time. At that time, we notified employees, embarked on an extensive program to reduce exposure levels, and began blood monitoring analyses. Employees have been kept advised on new developments and of blood test results.

We ask your cooperation with job reassignments and participation in a program for additional blood sampling.

We will inform you promptly as new information is obtained.

RJB/djp

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QUESTIONS AND ANSWERS

- To Be Used As Needed To Answer Questions -

If there are any questions not answered below, they should be referred to Plant Management.

1. Q: How many female employees at your Parkersburg plant may have been exposed to C-8?

   A: About sixty worked in areas where there is potential for exposure.

2. Q: Have you sampled the blood of these employees to determine if they have elevated organic fluoride levels?

   A: Some but not all female employees have been sampled as part of our existing programs.

3. Q: Do they have levels of C-8 above normal?

   A: Yes, some do.

4. Q: Are any of the sixty female employees pregnant?

   A: Yes, two that we know of.

5. Q: Are there any former employees you know of who may have been exposed to C-8 and who are now pregnant?

   A: Yes, one that we know of.

6. Q: What have you advised these pregnant women to do?

   A: We have advised these employees to consult the plant physician for an explanation of the potential risks and will have them consult also with their personal physician. The exact significance of the animal test results to the human offspring is yet unknown. However, we believe it prudent to eliminate any further exposure that results in blood levels greater than background until additional data are obtained.

7. Q: Have you attempted to locate former female employees to advise them of the 3M Company's animal study which indicated that C-8 may be teratogenic?

   A: We are in the process of reviewing our employment records and where appropriate, former employees will be notified.

8. Q: Do you have any knowledge of Du Pont employees or former employees who have been exposed to C-8 whose children suffered birth defects?

   A: No. There is no evidence of birth defects among children born of mothers who have been exposed to C-8 compounds at Du Pont.

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9. Q: Do you have any knowledge of 3M Company employees or former employees who have been exposed to C-8 whose children suffered birth defects?

   A: No. We are not knowledgeable of the pregnancy outcome of any 3M employees or former employees who were exposed to C-8.

10. Q: What is the possibility that employees or former employees of childbearing age with elevated organic fluoride levels may give birth to children with defects.

    A: We do not know, but we are taking appropriate steps to avoid further exposure.

11. Q: Is there any indication that male employees or former male employees exposed to C-8 may have suffered loss of reproductive function?

    A: We have no indication that C-8 has an effect on the male reproductive system or its function. The reproductive organs of the male laboratory animals exposed to C-8 were closely examined and were normal, with no evidence of abnormalities attributable to C-8 exposure.

12. Q: Are there any tests that can assure the fetus is all right?

    A: There are no tests which can assure that the fetus is all right. There are tests which can detect fetal abnormalities in some cases. If these tests are done and are normal, there is a good likelihood that the fetus is all right.

13. Q: What advice do we have for women of childbearing capability who have been exposed, about becoming pregnant?

    A: This is a personal subject between the woman and her physician.

14. Q: Will elevated organic fluoride levels in the blood decrease in time?

    A: Yes.

15. Q: How long does it take for these levels to fall to background levels?

    A: It is not known at this time. Blood samplins is continuing.

Q: Can employees and former employees with elevated organic fluoride levels donate blood safely?

A: Blood donating is a deferrable option. Persons who have elevated blood levels of C-8 or who have worked in areas of potential exposure to C-8 and the blood level has not been determined should not donate blood until the blood level of C-8 returns to background levels.

17. Q: What is the background level?

A: In our experience in blood tests conducted among employees with little chance for potential exposure, organic fluoride blood levels ranged up to 0.4 ppm

18. Q: Have you resampled employees' blood recently?

A: Yes, and we are taking additional samples in an ongoing program.

19. Q: Were the levels lower in the recent blood samples?

A: So far there is no obvious trend with the data available.

20. Q: Is there danger to the families of employees who work in the area?

A: By following the established practices and procedures, use of personal protective equipment and following good personal hygiene practices, there should be no hazard to the employee's family.

21. Q: What operating procedures were instituted by Du Pont after the first 3M report in 1978?

A: Extensive engineering programs were developed which included equipment modifications and increased use of personal protective equipment. In addition, we instituted blood monitoring and air sampling programs as well as more stringent housekeeping standards.

22. Q: What additional changes in operating procedures do you plan now?

A: This has not been determined. We are reviewing the situation.

23. Q: Are you looking for a substitute for C-8?

A: Yes, we have been for some time.

24. Q: What are the possible substitutes?

A: We have not idenfified one at present.

25. Q: Why did the 3M Company test C-8 for teratogenicity?

A: We understand that C-8 is chemically similar to other compounds made by 3M and that in earlier testing were found to be teratogenic.

26. Q: When did Du Pont learn of the latest study results?

A: March 20, 1981.

27. Q: Has the appropriate Federal regulatory agencies been notified?

A: Yes. 3M, our supplier, has notified EPA of the study and its results.

28. Q: What were the birth defects noted by 3M in the unborn fetus?

A: Eye defects are reported but complete testing will be required.

29. Q: What additional animal testing is planned?

A: Elaborate C-8 teratology evaluations of laboratory results to confirm 3M preliminary results and to identify safe exposure level for females.

30. Q: What is Du Pont's policy on employing women around embryotoxins?

A: Women of childbearing capability are allowed to work in areas of potential exposure to teratogens where a safe exposure level is known and the exposures can be maintained below these levels. Women of childbearing capability are not allowed to work in areas where safe levels are not known or where the potential exposures are above safe levels. Women who are not of childbearing capability can work in areas of potential exposure to teratogens.

31. Q: Has Du Pont ever required or suggested that an employee be sterilized?

A: No.

32. Q: Are there any other chemicals used at your Parkersburg plant that are embryotoxic?

A: Yes, DMF (dimethyl formamide) and HFA (hexafluoroacetone).

33. Q: What products are sold by Du Pont using C-8 (ammonium perfluorooctanoate)?

A: Various fluorocarbon resin and dispersion products.

34. Q: Is there any problem involved with cookware which has been coated with fluorocarbon resin?

A: No

35. Q: Will Du Pont be notifying its customers of the most recent findings reported by 3M?

A: Yes.

36. Q: Have women been removed from exposure at all Du Pont locations?

A: No, not at those locations where blood levels are at background.

RJB/djp
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